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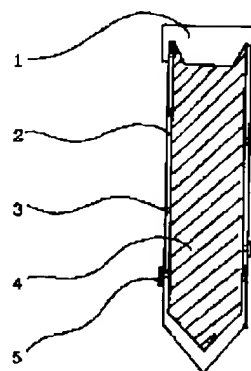
(72) Inventor: **KINUGAWA SHINICHI**

(54) PILELIKE ORGANIC FERTILIZER WRAPPED IN BIODEGRADABLE RESIN

(57) Abstract:

PROBLEM TO BE SOLVED: To supplement nutrients to plants, maintain the physical strength, retain the resistance to diseases, pollution, etc., prevent useful microorganisms from being removed, improve the soil and treat sewage and wastewater by using an organic fertilizer placed in a pile-like container made of a biodegradable resin.

SOLUTION: An organic fertilizer 4 is placed in a pilelike container 2 made of a biodegradable resin and compressed. A lid 1 made of the same biodegradable resin is then bonded thereto. Since a period of about one month is required for the biodegradable resin to start the degradation with microorganisms, suitable holes 3 are previously bored in the container 2 and seals 5 for hermetically sealing the container till the time of use thereof are applied thereonto. Furthermore, the organic fertilizer is previously placed in a mold and compressed to form a material of a pilelike form. The resultant pilelike organic fertilizer 4 is then coated with the biodegradable resin to a suitable thickness. Suitable holes 3 are then bored in the container 2 and the seals 5 are applied till the time of use and used.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] this invention relates to the nature fertilizer of organic for trees.

[0002]

[Description of the Prior Art] It is the example which wound pasteboard around many layers, hardened from paraffin, built the cylinder, crushed the nose of cam, considered as the shape of a pile, and packed chemical fertilizer in the cylinder as an example similar to this invention by the object for home use for trees conventionally. The example which mixed the joint agent with chemical fertilizer as an importation by the American patent, and was directly hardened in the shape of a pile. There are two **s. There were some which made ****, the bone meal, etc. directly the shape of a small pile which carried out harder xeransis as an object for flowerpots as a thing of the shape of a pile of the nature fertilizer of organic.

[0003]

[Problem(s) to be Solved by the Invention] Now, a thing that it nourishes with symbiosis with a subterranean microorganism, healthy physical strength is maintained and resistance forces, such as illness, pollution, ****, and frost, are held is well-known like [vegetation] an animal. Although the plant of vegetables, a flower, and a tree etc. is a short-term crop and does not specially have the time when abnormalities come out, either, about the tree used as the tree, carrying out the dressing of the chemical fertilizer brings the result to which breaking down a balance only eliminates the useful microorganism in soil on the contrary, and it brings the result which excepts the potency of the microorganism with various above other than the fertilizer effect.

[0004] Therefore, in order to cultivate a tree healthily, from throwing in chemical fertilizer, it is the best to throw in the nature fertilizer of organic in the earth, and this will achieve an improvement of the survival environment of a symbiosis partner's microorganism in soil, i.e., soil texture, and soil enhancement.

[0005] The artificer of this invention produced commercially commercially the present nature fertilizer of organic which must touch and carry out a dressing to a hand in the object also with simple handling by being beautiful for appearance and not making [smell] it many years, gave generality, and has thought whether a consumption expansion can be carried out.

[0006] It is the result of having considered now about the problem of processing of eccrisis, such as social-problem-ized zootechnics feces and urine, excrement sludge, lower drainage sludge, and a food residue. International and domestic environmental standards became severe every year, and sea dumping was also forbidden the top in which carrying out abroad is impossible. On the other hand, Japan is planning to promote the lower waste-water-treatment enterprise a [the advanced nation average] over several years. It must accumulate huge lower drainage sludge, must share ** and people wisdom increasingly, and had to come to inquire the processing measure of the rational and eccrisis gentle to an earth.

[0007] There are few rates by which these eccrisis is formed into the nature fertilizer of organic now, it destroys by fire, and most reclaims land and sea dumping is carried out. Originally, since the postwar

period, depending on chemical fertilizer, so, the agriculture of my Japan which must be the large consumer of the nature fertilizer of organic supported the crops made weak by pesticide frequent throw of the same pitch, and has endured them somehow. And although it came to be strongly cried for the damage of a pesticide very gradually soon, chemical-free farming and the nature fertilizer of organic were improved gradually and the consumption has also been extended, the present condition is not positively used from the handling inconvenient still more.

[0008] The artificer asked and asked the tree of the green belt of a golf course, a park, a garden, and a passage for the large consumption place of this nature fertilizer of organic as well as the national home in addition to agriculture. A tree planting enterprise of Japan is because there is a chance of it being still poor and being more expanded from now on compared with European and American it.

[0009] As mentioned above, always, a tree pays and manages cautions and it not only plants it, but it becomes reduction of big cost socially by preventing and carrying out the healthy maintenance of the wither lump which happens from various damage. However, even if the nature fertilizer of organic turns out to be good for a tree, a consumption expansion is not conventionally expectable by the thing of vinyl bag entering of marketing on national trees a handling inconvenient. Therefore, the artificer did not soil a hand, could do work beautifully and simple, and thought that this design which it is cheap and is easy to generalize was carried out, and processing gentle to the earth of the eccrisis which serves as the social problem by that cause could be performed.

[0010]

[Means for Solving the Problem] Although it is sufficient for things if an artificer is easy to be the thing of vinyl bag entering as conventional if the nature fertilizer of organic is used for agriculture and a kitchen garden, he scatters it and mixes soil. If what it is beautiful, the nature fertilizer of organic is wrapped, it considers as the shape of a pile, and the packaging goods itself do not bring pollution, but understands, and the upper intensity also has by natural, and can be supplied in the earth by the mallet. Simple is not made in order to expand a consumption place to national various trees as mentioned above was considered.

[0011] As a result of repeating thought and investigation, a certain business firm will develop an artificer in 1992. There are biodegradability resins (aliphatic polyester of the amount of macromolecules obtained according to the condensation polymerization of a glycol and a dicarboxylic acid etc.) which began the commercial production from 1994. The resin began decomposition one month after in soil, acquired the information that it will decompose and disappear within one year at a pollution-free thing, after meeting the business-firm staffs instantly and listening to the explanation, obtained the material resin and obtained the real trial and the satisfactory result.

[0012] Namely, [Drawing 1] [Drawing 2] It got down with ** and the container in which the nose of cam sharpened by the biodegradability resin was made, and after paying the nature fertilizer of organic and compressing into it, the free wheel plate was carried out by the same resin. Furthermore, [Drawing 3] [Drawing 4] It got down with **, the nature fertilizer of organic was hardened in the shape of a pile, and the coat was more thickly carried out by the resin.

[0013]

[Function] Aforementioned [Drawing 1] [Drawing 2] Furthermore, it is [Drawing 3]. [Drawing 4] By coloring a biodegradability resin with a suitable pigment, if appearance is also beautiful, and can soil and deal with a hand and the resin itself takes care even about extreme moisture, the object of two **s is stabilized in the atmospheric air, and its store is also good. It can be made dormant [living a microorganism, when the nature fertilizer of organic of the mesosomia was furthermore also dried and moisture was stopped low]. That is, it stops and the nature fertilizer [itself] fermentation of organic does not emit gas and heat at all. If a certain amount of thickness is moreover given to a resin, it is possible to devote oneself into soil simply by the mallet with the intensity of an outer wall.

[0014]

[Example]

The example 1 of example 1 this invention is explained based on drawing 1 and the drawing 2. Drawing 1 and the drawing 2 are the perspective diagrams and drawings of longitudinal section showing the

structure of the thing of an example 1, and an operation, respectively. The free wheel plate 1 made by the same biodegradability resin after paying and compressing the nature fertilizer 4 of organic into the pile-like container 2 made from the biodegradability resin is pasted up. In order to seal until it makes the hole 3 of the suitable size for a container 2 beforehand and it uses it, in order to take the term for about one month for a biodegradability resin to begin to decompose from a microorganism, the seal 5 is stuck on the hole 3.

[0015] The example 2 of example 2 this invention is explained based on drawing 3 and the drawing 4. Drawing 3 and the drawing 4 are the perspective diagrams and drawings of longitudinal section showing the structure of the thing of an example 2, and an operation, respectively. The nature fertilizer of organic is beforehand paid to a mold, after compression, the thing of the pile-like gestalt is made and the coat of the nature fertilizer 4 of organic of the shape of this pile is carried out to suitable thickness by the biodegradability resin. Then, the suitable hole 3 for the thing 2 carried out and made to this appearance is made, and the seal 5 is stuck until it uses it.

[0016]

[Effect of the Invention] By supplying to the tree of the park left, planting generally the nature fertilizer of organic concerning this invention, a garden, and a passage green belt at once in one year, a dressing and soil enhancement work can end simple cheaply, a tree can be activated, the life can be prolonged, and it becomes cost reduction all fields.

[0017] On the other hand, by fermenting eccrisis, such as the social-problem-ized zootechnics, excrement sludge, lower drainage sludge, and a food residue, by the microorganism, forming nature fertilizer of organic, and using it for this invention article It is also a problem for the sea dumping of the eccrisis to be forbidden, and for reclamation to also have a problem, to destroy by fire from petroleum, and to take out smoke and a smell today. Moreover, if this invention spreads, considering the present condition that the nature fertilizer of vinyl bag entering organic for agriculture already built is also superfluous ****, and itself has become the eccrisis now, one clean art of the eccrisis will be established.

[0018] Moreover, compared with other resins, this biodegradability resin built from the first since it was decomposed by the microorganism by the discarded reclaimed ground when a synthetic-resin product became a contaminant is expensive, and the property of a biodegradability narrows a field of the invention conversely, and is in the low status of need now. The artificer wrapped beautifully directly the nature fertilizer of organic which is dirty for appearance and emits a smell taking advantage of the property of this resin, and it was enabled to drive in the nature fertilizer of organic into soil simply with the intensity, and the natural decomposition of the resin itself was carried out, and it considered the thing of never taking out pollution. The meaning of a development of this resin will also become big from generally this invention spreading.

[Translation done.]

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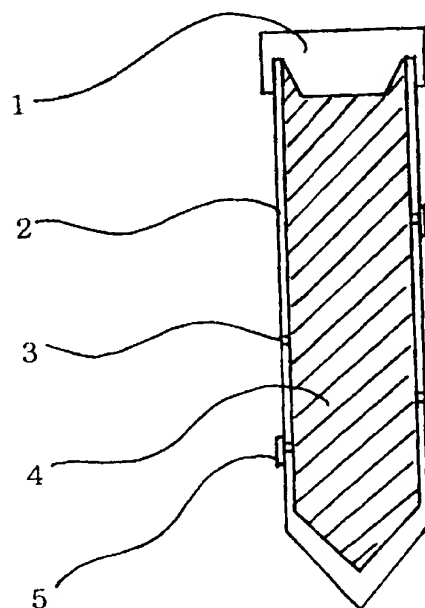
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(54)【発明の名称】 生分解性樹脂で包まれた杭状の有機質肥料

(57)【要約】

【課題】 有機廃棄物を発酵処理してできた有機質肥料を樹木用として、広く普及させるため、見た目も美しく、手も汚さず、簡便に樹木の根元に木づちで打ち込み可能な強度の杭状のものにする。

【解決手段】 適当な色に着色した生分解性樹脂を地面に打ち込み可能な強度が出る厚みとして杭状の容器2をつくり、その中に有機質肥料を圧縮していれ、同じ樹脂で作られたフタ1を接着させる。容器2には、穴3が開けてあり、使用する迄は、シール5が貼付してある。



【特許請求の範囲】

【請求項1】 生分解性樹脂でつくられた杭状の容器（フタ付き）に入れた有機質肥料

【図1】、

【図2】、

【請求項2】 生分解性樹脂の被膜をかけた杭状の有機質肥料

【図3】、

【図4】

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明は樹木用の有機質肥料に関するものである

【0002】

【従来の技術】 従来、家庭用の樹木用ということで、本発明と似た例としては、厚紙を何層にも巻いて、パラフィンで固めて円筒をつくり、先端を押しつぶして杭状とし、その円筒内に化学肥料をつめた例、アメリカ特許で輸入品として、化学肥料に固結剤を混ぜて、直接、杭状に固めた例、の二例がある。有機質肥料の杭状のものとしては、植木鉢用として、油粕、骨粉等を直接、固め乾燥させた小さな杭状にしたものがあつた。

【0003】

【発明が解決しようとする課題】 今や、植物も動物と同様、地中の微生物との共生により栄養補給し、健康な体力を維持し、病気、公害、旱魃、霜などへの抵抗力を保持しているとのことか公知のものとなつてきた。野菜、草花、樹木の苗木等は短期収穫物であり、別段、異常が出る時間もないのだが、成本となつた樹木に関しては、化学肥料を施肥することは、バランスを崩すのみであり、却つて土中の有用微生物を排除する結果となり、肥料効果以外の前記のさまざまな微生物の効力を除外する結果となる。

【0004】 故に樹木を健康に育てる為には、化学肥料を投入することより、有機質肥料を地中に投入することが最善でありそれにより、共生相手の土中微生物の生存環境の改善、即ち土質、土壌改良を果たすことになるのである。

【0005】 この発明の発明者は長年、手に触れて施肥しなければならぬ現在の有機質肥料を見だ目に美しく、臭いせず、取扱も簡便な物に製品化し、一般性を付与し、消費拡大できないものかと考えてきた。

【0006】 それは現在、社会問題化している畜産糞尿、尿尿汚泥、下排水汚泥、食品残渣等の廃棄物の処理の問題に就いて考えてきた結果である。国際、国内の環境基準は年々、厳しくなり、海外への持ち出し不可能な上、海洋投棄も禁止となつた。一方、数年かけて日本は、先進国並みに下排水処理事業を推進している計画である。それは、膨大な下排水汚泥をためることになり、益々官、民知恵を出し合つて合理的かつ、地球に優しい

廃棄物の処理策を検討しなければならなくなつた。

【0007】 これらの廃棄物は現在、有機質肥料化される割合は少なく、大部分が掩却、埋め立て、海洋投棄されている。本来、有機質肥料の大消費者であるはずの、わが日本の農業は戦後以来、化学肥料に依存し、それ故、軟弱化する作物を農薬多投によつて支え、何とか凌いできた。そして、今に至つて漸く農薬の害が強く叫ばれる様になり、徐々に自然農法や有機質肥料が見直され、その消費も伸びてきたのだが、またまた、その取扱不便さから積極的に使用されていないのが現状である。

【0008】 発明者は、この有機質肥料の大消費先を農業以外に全国の家庭はもちろん、ゴルフ場、公園、庭園、道路の緑地帯の樹木に求めた。日本の緑化事業は欧米のそれに比べ、まだ貧弱で今後もっと拡充される見込みがあるからである。

【0009】 前記の様に樹木は植えるだけではなく、常時、注意を払い、管理し、さまざまな害から起こる枯れ込みを防ぎ健康維持することにより、社会的に大きな経費の節減にもなるのである。然し、樹木にとって有機質肥料が良いと分かつて、従来の市販のビニール袋入りのものでは取扱不便さにより、全国の樹木用に消費拡大を期待することはできない。その為、発明者は、手を汚さず、美しく、簡便に作業ができ、そして安価で一般化しやすい本考案をし、それにより、社会問題となつてい

る廃棄物の地球に優しい処理ができると考えた。

【0010】

【課題を解決するための手段】 発明者は、有機質肥料を農業、家庭菜園に使用するのであれば従来どおりのビニール袋入りのもので良く、それをばらまき、土と混ぜれば事は足りるのであるが、前記の様に全国の種々の樹木用に消費先を拡大する為には有機質肥料を美しきもので包み杭状とし、その包装物自体も公害をもたらさず自然分解するものであり、その上強度もあつて簡便に木づちで地中に投入できるものを作らねばと考えた。

【0011】 発明者は思案、調査を重ねた結果、ある会社から1992年に開発し、1994年から商業生産を始めた生分解性樹脂（グリコールとジカルボン酸の縮合重合により得られる高分子量の脂肪族ポリエステル等）があり、その樹脂は土中で一カ月後から分解を始め、一年内に無公害のものに分解し、消失するとの情報を得、早速その会社関係者と出会い、説明を聞いた上で、材料樹脂を頂き実験し、思い通りの成果を得た次第である。

【0012】 即ち、

【図1】、

【図2】 のとおり、生分解性樹脂で先端がとがつた容器を作り、その中に有機質肥料を入れ、圧縮した上で同じ樹脂でフタをした。さらに、

【図3】、

【図4】 のとおり、有機質肥料を杭りに固め樹脂で厚めに被膜した。

【0013】

【作用】前記の

【図1】、

【図2】さらに

【図3】、

【図4】の二例の物は生分解性樹脂を適当なる顔料で着色することにより、見た目も美しく、手を汚さず取扱うことかてき、樹脂自体も極端な湿気にさえ気をつければ大気中で安定して保存もいい。さらに中身の有機質肥料も乾燥して水分を低く抑えれば微生物を生きのまま休眠させることができる。即ち、有機質肥料自体発酵は停止し、何らガス、熱を発することはない。その上、樹脂に、ある程度の厚みをつければ外壁の強度により、木づちで簡単に土中に打ち込むことが可能である。

【0014】

【発明の実施例】

実施例1

本発明の実施例1を図1、図2に基づいて説明する。図1、図2は、それぞれ実施例1のものの構造及び作用を示す斜視図並びに縦断面図である。生分解性樹脂で作られた杭状の容器2の中に有機質肥料4を入れ圧縮したうえで同じ生分解性樹脂で作られたフタ1を接着させる。生分解性樹脂が微生物より分解し始めるのに1カ月程度の期間を要するため、予め、容器2に適当な大きさの穴3を開けておき、使用する迄は密閉するためシール5を穴3の上に貼っておく。

【0015】実施例2

本発明の実施例2を図3、図4に基づいて説明する。図3、図4は、それぞれ実施例2のものの構造及び作用を示す斜視図並びに縦断面図である。予め有機質肥料を型に入れ圧縮の上、杭状の形態のものを作っておきこの杭状の有機質肥料4を生分解性樹脂で適当な厚みに被膜したものである。その後、この様にしてきたもの2に適当な穴3を開け、使用する迄の間、シール5を貼っておく。

【0016】

【発明の効果】この発明に係わる有機質肥料を概して植 *

* えたまま放置されている公園、庭園、道路緑地帯の樹木に一年間に一度、投入することにより安価に簡便に施肥及び土壌改良作業が済み、樹木を活性化させ、その寿命を延ばすことができ、あらゆる面で経費削減となる。

【0017】他方、社会問題化している畜産、屎尿汚泥、下排水汚泥、食品残渣等廃棄物を微生物により発酵させ、有機質肥料化し、本発明品に使用することにより、今日、廃棄物の海洋投棄が禁止となり、埋立も問題があり、石油で焼却して煙と臭いを出すのも問題であり、又、現在、既につくられている農業用のビニール袋入り有機質肥料も過剰ぎみであり、それ自体が廃棄物となっている現状からして、この発明品が普及すれば、廃棄物のクリーンな処理方法が一つ、確立することとなる。

【0018】又、元々、合成樹脂製品がごみになった場合、廃棄された埋立地で微生物で分解されるためにつくられたこの生分解性樹脂は、現在、他の樹脂に比べて高価であり、生分解性の性質が逆に利用分野を狭め需要の低い状態にある。発明者は、この樹脂の特性を直接的に活かし、見た目に汚く、臭いを発する有機質肥料を美しく包み、その強度によって有機質肥料を簡単に土中に打ち込むことを可能とし、樹脂自体は自然分解して決して公害を出さないというものを考えた。この発明品が一般に普及することより、この樹脂の開発の意義も大きなものとなる。

【図面の簡単な説明】

【図1】実施例1の構造及び作用を示す斜視図である。

【図2】同じく実施例1の構造及び作用を示す断面図である。

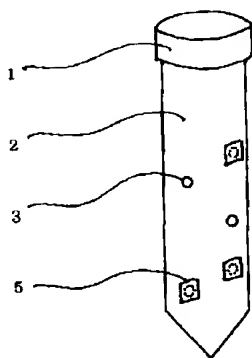
【図3】実施例2を示す斜視図である。

【図4】実施例2を示す断面図である。

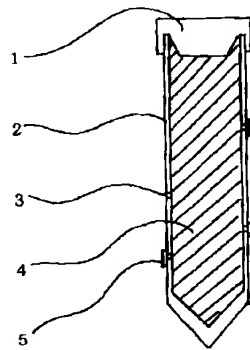
【符号の説明】

- 1、フタ
- 2、容器
- 3、穴
- 4、有機質肥料
- 5、シール

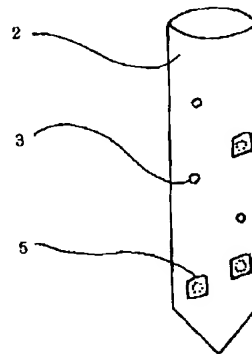
【図1】



【図2】



【図3】



【図4】

